CLAIMS

What is claimed is:

1. A method for distinguishing between subsets of red blood cells in a sample, said method comprising:

contacting said sample with at least a first marker reagent reactive with a first component of a red blood cell and with at least a second marker reagent reactive with a second component of a red blood cell, and

determining the reactivity of said first and second marker reagents.

2. The method according to claim 1 wherein at least one of said first and second components comprises an intracellular component of a red blood cell.

3. The method according to claim 1 wherein said first component is hemoglobin F.

4. The method according to claim 1 wherein said second component is carbonic anhydrase.

5. The method according to claim 2 wherein the first component is hemoglobin F and the second component is carbonic anhydrase.

6. The method according to any one of claims 1 through 5 wherein at least one of the marker reagents comprises an antibody.

7. The method according to claim 6 wherein the first marker reagent comprises a first antibody and the second marker reagents comprises a second antibody, each of said first and second antibodies being reactive with a distinct antigenic component of a red blood cell.

8. The method according to any one of claims 1 through 7 wherein at least one of the

first and second marker reagents comprises a fluorochrome.

9. The method according to claim 8 wherein both of said first and second marker reagents comprise a respective fluorochrome, each said respective fluorochrome having a distinct emission spectrum.

10. The method according to any one of claims 1 to 9 further comprising determining the reactivity of the marker reagents with said red blood cells by flow cytometry.

11. The method according to any one of claims 1 to 10 further comprising determining the reactivity of said marker reagents with said red blood cells by detecting fluorescence.

12. A diagnostic kit suitable for the differentiation of subsets of erythrocytes, said diagnostic kit at least comprising:

a first marker reagent reactive with a first component of a red blood cell, and

a second marker reagent reactive with a second component of a red blood cell.

13. The diagnostic kit of claim 12, wherein the reactivity of said marker reagents with said cells is determined by flow cytometry.

14. The diagnostic kit of claim 12 or claim 13, wherein said first component consists of hemoglobin F.

15. The diagnostic kit of claim 12 or claim 13, wherein said second component consists of carbonic anhydrase B.

16. The diagnostic kit of claim 12 or claim 13, wherein said first component consists of hemoglobin F and said second component consists of carbonic anhydrase B.

17. A reagent mixture suitable for use in the differentiation of subsets of erythrocytes, said mixture comprising at least a first marker reagent reactive with a first component of a red blood cell and a second marker reagent reactive with a second component of a red blood cell.

18. A method of monitoring the efficacy of an intrauterine transfusion, said method comprising: quantifying fetal cells in a fetal blood sample by the method according to any one of claims 1 to 11 and calculating the percentage of a donor's red cells in the fetal circulation.

19. A method for non-invasive prenatal testing of a fetus, said method comprising:

identifying and isolating fetal cells from a maternal blood sample according to any one of claims 1 to 11, and

testing said the cells.

20. A method for distinguishing between maternal and fetal red blood cells in a blood sample, said method comprising:

contacting the blood sample with

a first marker reagent comprising a first binding molecule reactive with a red blood cell component predominantly associated with fetal red blood cells so as to bind fetal blood cells present in the blood sample with the first marker reagent and also

contacting the blood sample with a second marker reagent comprising a second binding molecule reactive with a red blood cell component predominantly associated with maternal red blood cells so as to bind maternal blood cells present in the blood sample with the second marker reagent,

wherein the first and second marker reagents further comprise distinct first and second labels associated with the first and second binding molecules respectively, and

determining the interaction of said first and second marker reagents by detecting said first and second labels, thus distinguishing the first and second marker reagents from one another in the blood sample.